

What is claimed is:

1. A multichannel pipette system for aspirating and/or dispensing fluid into multiple fluid receptacles comprising:

a pipettor having at least one body and two or more plungers;

5 one or more removable pipette tip arrays, wherein the removable pipette tip arrays mate to the at least one body of the pipettor, and wherein each tip array has more than one tip.

2. The multichannel pipette system of claim 1 wherein the pipettor is an automated pipettor.

10 3. The multichannel pipette system of claim 1 wherein the more than one tips are automatically aligned with the fluid receptacles.

4. The multichannel pipette system of claim 1 wherein the multiple fluid receptacles are within a multiwell plate.

5. The multichannel pipette system of claim 1 wherein the removable tip arrays  
15 comprise four tips or sixteen tips in a square array, the array corresponding to wells in a microplate.

6. The multichannel pipette system of claim 1 wherein the removable tip arrays comprise 1536, 384, 96, 24, 12, or 6 tips in a rectangular array, the array corresponding to wells in a microplate.

7. The multichannel pipette system of claim 1 wherein the removable tip arrays comprise 48, 32, 24, 16, 12, or 8 tips in a linear, the array corresponding to wells, rows or columns in a microplate.
8. The multichannel pipette system of claim 1 comprising an equal number of  
5 bodies, plungers, and tip arrays, with one plunger traveling in each body.
9. The multichannel pipette system of claim 8 wherein each tip array mates to a body.
10. The multichannel pipette system of claim 1 wherein the tip arrays each further comprise a flexible membrane, the membrane forming a static seal with the tip array.
- 10 11. The multichannel pipette system of claim 1 further comprising a flexible membrane positioned between the tip arrays and the plungers, the membrane forming a static seal with the tip arrays.
12. The multichannel pipette system of claim 11 wherein the flexible membrane is connected to the pipettor by one or more clamps.
- 15 13. The multichannel pipette system of claim 11 wherein the static seal between the flexible membrane and the tip arrays is formed in part with a sealing fluid.
14. The multichannel pipette system of claim 11 wherein the flexible membrane is held by a frame , the frame having a center region, and the flexible membrane spans the center region of the frame.

15. The multichannel pipette system of claim 1 wherein the tip arrays are formed of plastic, metal or combinations thereof.
16. The multichannel pipette system of claim 14 wherein each tip array includes a mating feature at its edge for mating with the frame.
- 5 17. A sealing element for forming a seal between a pipettor and tip arrays of a multichannel pipettor comprising:
- a frame having a center region; and
  - a flexible membrane attached to the frame, such that the membrane covers the center region of the first frame.
- 10 18. The sealing element of claim 17 wherein the frame comprises a top frame and a bottom frame, and wherein the flexible membrane is sandwiched between the top frame and the bottom frame.
19. The sealing element of claim 17 wherein a sealing fluid covers at least a portion of the side of the flexible membrane that seals with the pipette tip array.
- 15 20. The sealing element of claim 17 wherein the frame is rectangular, and the flexible membrane and the frame are of essentially the same width and length.
21. The sealing element of claim 17 wherein the flexible membrane is a latex sheet.
22. The sealing element of claim 18 wherein the frame includes a surface feature that assists the alignment or joining of the frame to the pipette tip array.

23. A pipette tip array for use with a multichannel pipettor to aspirate and/or dispense fluid into multiple fluid receptacles comprising a plurality of pipette tips.

24. The pipette tip array of claim 23 wherein the plurality of pipette tips are configured in a square, rectangular or linear array.

5 25. The pipette tip array of claim 24 comprising 1536, 384, 96, 24, 12, or 6 tips in a rectangular array, the tips in the array corresponding to receptacles in a microplate.

26. The pipette tip array of claim 24 comprising four or sixteen tips in a square array, the tips in the array corresponding to receptacles in a microplate.

10 27. The pipette tip array of claim 24 comprising 48, 32, 24, 16, 12, or 8 tips in a linear array, the tips in the array corresponding to receptacles in a microplate.

28. The pipette tip array of claim 23 wherein the multiple fluid receptacles are in a microplate and the plurality of pipette tips are arranged to correspond to the receptacle locations.

15 29. The pipette tip array of claim 23 further comprising a flexible membrane attached to the pipette tip array.

30. The pipette tip array of claim 29 wherein the flexible membrane forms a seal with the pipette tip array with a sealing fluid.

31. The pipette tip array of claim 29 wherein the flexible membrane is positioned in a frame, and wherein the frame includes a surface feature that assists the alignment or joining of the frame to the pipette tip array.